ABSTRACT OF THE DISCLOSURE

In an alternate technique, a magnetic resonance imaging system comprises a set of gradient coils for producing controlled gradient field; a radio frequency coil for applying excitation signals to a subject of interest; a detecting coil for detecting magnetic resonance signals resulting from the excitation signals; and a control circuitry configured to energize the set of gradient coils, the radio frequency coil and to obtain a three dimensional phase wrapped image from the magnetic resonance signals detected by the detecting coils, and the control circuitry comprising a phase unwrap component to perform phase unwrapping in a volume of interest of the phase wrapped image to obtain a phase unwrapped image.